

Baltimore Uses Inner City Aides in a Tuberculosis Control Program

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THE RAPID expansion of medical and health services which has taken place over the past few years as a result of Federal legislation, combined with the greater number of services that have been brought within the reach of a larger proportion of the population, has highlighted the nationwide shortage of professional staff. This shortage has been particularly acute in tuberculosis control, as the Task Force on Tuberculosis Control to the Surgeon General of the Public Health Service noted in its report, "The Future of Tuberculosis Control" (1). The task force recognized the need to increase and expand professional competence in tuberculosis and, to this end, suggested that indigenous health aides be used to extend the capacity of the professional staff and expand community facilities for disease control. It indicated that expanded community facilities

were required because an increasing proportion of the treatment for tuberculosis that patients needed could be administered on an outpatient basis. The task force also suggested that many patients who were being kept in hospitals could be discharged if the community had facilities to continue their care outside the hospital.

As a result of the report, funds were made available from Federal sources for the establishment of special tuberculosis projects, specifically constituted to expand community services, and guidelines were set up as to how these monies could best be spent.

Organization of Baltimore City Project

In the City of Baltimore, a special tuberculosis project, which had been set up in 1962, was expanded in 1964, based on these funds. Moodie, who had previous experience with paramedical workers in tuberculosis control, both in the field and in the clinic (2), developed the project along the lines laid down in the report of the task force. Under the special project grant, a separate paramedical section of the city's tuberculosis control staff was set up, known as the investigative staff. This section was to operate under close supervision from the central office of the tuberculosis control program, but under the day-to-day supervision of the individual chest clinics. Thus, the staff of each of the five chest clinics was divided into three principal groups: a nursing section, which

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was to provide general supervision and see that medical instructions were implemented; a clerical section, which was to record results, recommendations, and statistical information; and an investigative staff, whose members were to act as ancillaries in the clinics in functions other than clerical and, through fieldwork, insure that all patients took full advantage of the services available.

Need for More Field Staff

By 1964, the need for expansion of the field staffs of the chest clinics in the city was evident. More than 40 percent of a series of patients treated for tuberculosis in Baltimore hospitals in 1963 could not be located within 2 years after discharge. In the first 6 months of 1964, only 55 percent of the persons in the city with known active cases of tuberculosis who were at home had had chemotherapy prescribed over the preceding 6 months. Experience showed that approximately 6 weeks elapsed between the date of a missed visit by a patient and the date on which the nurse set out to bring the patient back. Because of the many demands on the bureau of public health nursing from other programs, reduction of this 6-week period did not seem possible. Moreover, the City of Baltimore consistently had had one of the highest new case rates for tuberculosis of any city in the country for 15 years or more. Something had to be done.

It was obvious that the staff of the bureau of nursing was not large enough to fulfill its assigned responsibilities. The nursing service available to the tuberculosis program was insufficient to deal either with the estimated number of home visits required or to handle the demands generated in the clinics as they were then operating. There was little hope that the service could be expanded to meet the current needs, let alone the considerably expanded requirements envisioned in the planned growth of the program. Even if the local supply of nurses had been sufficient, the bureau of nursing had no funds to employ additional nurses. The level of nursing salaries was unattractive, and experience had shown that it was almost impossible to interest nurses in tuberculosis control work.

On the other hand, both the Federal and

Baltimore City Governments were encouraging the use, where possible, of inner city residents in health programs. The supply of such candidates was plentiful, and they were cheaper to employ than trained nurses. Moreover, they were more likely to make a career in the program and less likely to be diverted by conflicting interests. They knew the areas where they would work and were inconspicuous in them, and they spoke the language of the majority of the patients. Also, they could be employed as an integral part of the tuberculosis control program. For these reasons, it was decided to use the special tuberculosis project to expand the field services. Initially, public health representatives were used in this expansion; health aides were added in 1967.

Public Health Representatives

Two male college graduates joined the investigative staff in 1965 to serve as public health representatives. For these supervisory positions, a college degree was then required. Men are considered to be essential for handling certain male patients. Moreover, investigations sometimes have to be extended into situations and areas which might present difficulties to women.

Subsequent experience in the program showed that male college graduates from the target



The principal function of the health aide is contacting the patient at home



Public health representative on fieldwork in area considered unsuitable for a female aide

areas have much to offer in such health programs, but their services are so much in demand that they are not attracted to a program of this kind in which prospects are limited. Thus, the two male college graduates engaged in 1965 were not from the inner city since no candidates from that area had applied.

Since these two men had no practical experience to back them, they at first took on only cases which the nursing service had abandoned. They were also available for immediate handling of persons discharged from a hospital against medical advice. They were a part of the clinic staff but, in the beginning, were mainly adjuncts to the public health nurse. They spent a sizable proportion of their time in the municipal courts and in taking persons with certain kinds of cases to the hospitals. Within a few months, however, the two representatives

had established themselves as an essential part of the clinic establishment. Gradually they were allocated defined responsibilities of their own, independent of the public health nurse, and their number was increased to five.

By 1967, when the first health aides were appointed and allocated fieldwork under the representatives' direction, these men had gained sufficient knowledge and experience to act in a supervisory capacity. Currently, there are three public health representatives on the investigative staff.

Qualifications and Training of Aides

All of the health aides have been women from the inner city, carefully selected on the basis of personality rather than educational background or work experience. Self-assured women with a

sense of responsibility are sought who can give a good presentation. They must have a good knowledge of the areas to which their activities will be directed and be able to talk to patients in their own terms. The possession of, or regular access to, a reliable automobile is mandatory since personal transportation is not easily available from official sources. Payment to the aides of mileage and parking expenses is more than justified since, for the outlay of \$35 to \$40 per month, one health aide with an automobile can do the work of two who have to depend on public transportation.

Many of the aides welcome the opportunity to render service to their own community. Since the aides are a part of the tuberculosis program, under the direct supervision and control of its staff, they are available to perform any reasonable task in the program. These workers are fully receptive to instruction in modern methods of tuberculosis control and soon develop a competitive team spirit.

Because of the urgent need in the tuberculosis control program, we put the first group of health aides into the field after a mere 2 weeks of training; additional training was given them, however, on an inservice basis. Subsequent groups of health aides have been given 6 weeks—later extended to 8 weeks—of initial training before they assumed responsibilities in the field. Eight weeks was found to be the minimum period necessary to acquaint the aides with the basic information on tuberculosis and patient followup and to delineate the responsibilities of the clerical and nursing staff.

In January 1968, all members of the investigative staff took a course in the elements of social work, specifically arranged by the social staff of the Baltimore City hospitals, as part of their inservice training. In 1969, upon request from the Baltimore City Health Department, the Maryland State Board of Medical Examiners agreed to the use of health aides, under medical supervision, for tuberculin testing. Following this decision, the staff of the tuberculosis program conducted a 40-hour formal training course in the theory and practice of tuberculin testing. At the end of this course, the nurse consultant of the Training Unit, Center for Disease Control, Public Health Service, conducted an examination and presented certifi-

cates to the health aides. Also, every chest clinic in Baltimore now has one or two health aides who have been trained to assist in operating or who, if necessary, can operate the X-ray machine by themselves. In 1968, two health aides attended a 6-month course in the counseling of alcoholics so that they would be able to set up and conduct counseling sessions for tuberculous alcoholics. Counseling sessions that the two aides subsequently conducted over a 3-year period seem to have been instrumental in restoring to self-support 23 tuberculous alcoholics who previously had been fully dependent on public funds.

Experience in Hong Kong in training paramedical staff (2) indicated that health aides should have an initial training period of 6 months, part of which should be inservice training. Our experience in Baltimore has shown that a health aide is frequently the only link between a tuberculous household and the health department; therefore the aide should have knowledge of other health fields. A program to train health aides for clinical work in other branches of the Baltimore City Health Department has recently increased the training period for health aides from 8 weeks to 6 months.

Management of Field Staff

The standards for a field aide must, on the whole, be higher than those for an aide who will work within a facility under immediate supervision. Extreme care must be exercised early in the training program in determining the participants' ultimate suitability for the positions for which they are being trained because of the high degree of job security offered employees in public service. Also, once a person has been trained, his skills are of little value in any other field. Thus, the attrition rate of health aides for this type of work was high in the initial stages of training and abnormally low thereafter. Over the 3½ years of our program, 23 health aides were taken on to fill the present 11 posts. Only one of the 23 who was lost to the service resigned (reluctantly because of domestic pressure). The remainder were transferred from the field aide program into less exacting posts. On the other hand, for the present three positions of public health representative, which fall in the supervisory category and for which



Health aides assist in weighing patients in the clinic

a college degree is a condition of employment, 15 men have been hired and trained, six of whom have left voluntarily to take up more attractive career prospects.

Now that a cadre of health aides has been formed and is operating satisfactorily, several aides have been promoted to the health aide II level. In addition, the job specifications for the supervisors, or public health representatives, have been altered so that these positions also are now open to aides at the health aide III or IV level. We hope, therefore, that in the future supervisors will be developed from among the health aides themselves. Prospects of promotion have greatly improved the morale of the health aides as a whole. Short courses of instruction with examinations and presentation of

certificates at the end have fostered a competitive spirit in the group and improved job performance.

Managing the Delinquent Patient

Before using paramedical staff for followup, the bureau of nursing and the district nursing supervisors had exerted every effort to expedite nursing visits to patients who had missed clinic appointments. To simplify followup on such patients and reduce the number of communications between the chest clinics and the district nursing service, a system for missed appointments was set up under which all patients were coded according to the clinical priority of their conditions. The action to be taken in the event

of a missed appointment was clearly defined, as well as who should take the action and at the end of what intervals. The clinics sent lists of missed appointments to the nursing service daily, but these lists appeared to have little effect in returning the patients to the clinics more rapidly. This system for missed appointments, however, later proved ideal for use by the investigative staff, since a minimum of medical knowledge was required to operate it. It has therefore served as the basis of operation for the investigative staff for several years.

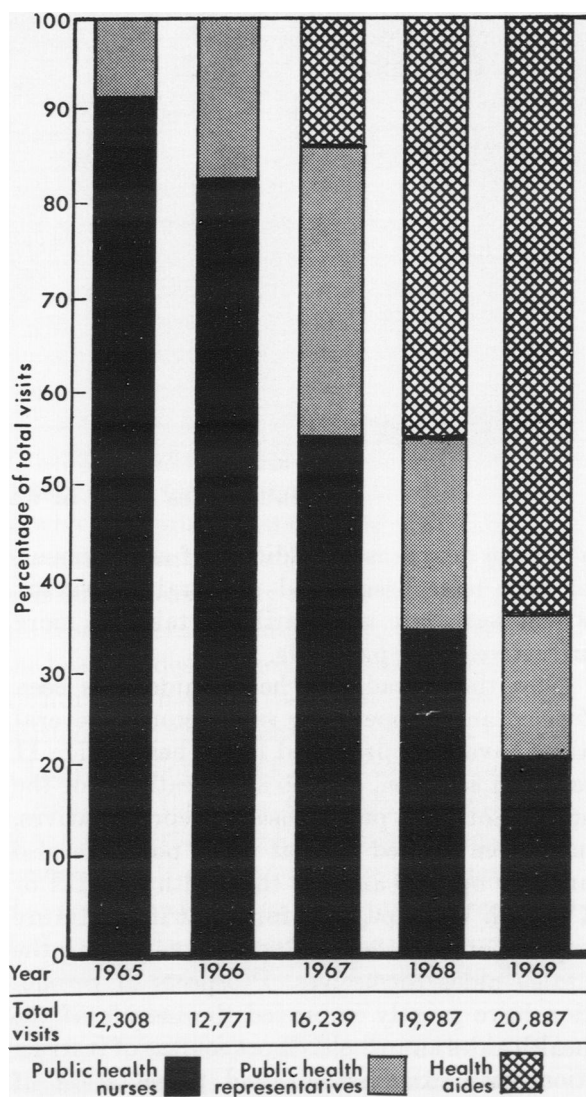
More recently, for the higher priority patients, printouts from the tuberculosis register service, the automatic data processing service operated by the Public Health Service, have begun to replace the records of missed appointments. These printouts have proved superior to the records of missed appointments because they include clinical data, and with this information available, the health aide can make a more intelligent visit to the delinquent patient. Use of the printouts obviates the need for the investigative staff to consult the patient's medical history record before setting out on a visit. Currently, however, only patients in Baltimore City with reported active or quiescent cases and patients with reported cases who are being treated with drugs are included in the computerized system. For all other patients of the clinic, the manually operated system of followup on missed appointments still has to be used.

Whatever system, or combination of systems, is used to recall delinquent patients, it should be simple, necessitate a minimum of clerical work, aid in the allocation of priorities, interfere little with normal clerical procedures, instill in the investigator a sense of urgency, provide a simple system of measurement of workload, and permit easy supervision.

Our experience in Baltimore has shown that a health aide can induce a patient to return to the clinic by making an average of 1.3 to 1.5 home visits, according to the quality of the aide. Within 2 weeks, the aide can get 76 percent of the delinquent patients assigned to her back to the clinic. The elapsed time in getting a delinquent patient back to the clinic has thus been reduced by two-thirds. Visit for visit, the health aide has proved to be at least as efficient in this kind of work as the nurse, and at half the price.

In the beginning, we estimated that one health aide working full time could look after 120 missed appointments per month if the major part of her time was spent on fieldwork, with a small portion devoted to the necessary backup clerical work. Almost one-half of all appointments made for the chest clinics were being missed. Thus, a health aide presumably could look after 240 patients. The success of the health aide program, however, immediately generated a great deal of additional work in the clinics. Therefore, despite a drop in the number of new

Annual visits to tuberculous patients and their contacts by public health nurses, public health representatives, and health aides, 1965-69



cases reported and a reduction to the necessary minimum in the number of visits it was considered essential for each patient to make, the number of clinic visits began to rise steeply, reaching a total increase of 50 percent over the 5-year period 1964 to 1969. The health aides therefore had to be used more and more in the clinics to provide increased and improved patient care. Eventually we found that each aide could care for only 160 patients in the field.

Results of Expanded Program

As the tuberculosis control project was expanded, responsibility for various functions in it were gradually transferred from the bureau of nursing to the division of tuberculosis. Because of the way in which the missed appointments system was constituted and operated, this transfer was administratively simple after the first few faltering steps. As the competence of the public health representatives and the health aides increased, these workers assumed an ever-increasing portion of the nursing load; the aides also took over part of the duties carried out initially by the representatives. As of December 31, 1969, the aides were carrying almost two-thirds of the load of field visits (see chart).

Other results of the expanded program have been equally impressive. Instead of having 40 percent of the patients listed as "non-locate" within 2 years after hospital release, as in 1965, only 5 percent were so listed in 1969. Between December 1965 and September 1968, the percentage of identified contacts of patients with tuberculosis who were brought to examination had fallen from 83.8 percent to 59 percent in spite of pressure by the tuberculosis division to increase the number examined. In September 1968, the responsibility for examination of contacts was transferred from the nursing service to the investigative staff. Within 6 months, the proportion of identified contacts who were examined had risen to 89 percent. The major remaining responsibility of the visiting general nurse in the tuberculosis control program is for the first, or educational, visit to the patient.

In addition to services in the field, the investigative staff has been able to render valuable service in the chest clinics, where the health



Health aides are entirely responsible for obtaining nebulized sputum specimens in the clinic. More than one-half of all specimens are obtained by this method

aides have been used in any capacity other than pure clerical work. With the passage of time and increasing competence, the aides have been able to relieve nurses of many routine responsibilities. They also have taken on full responsibility for procedures such as operating sputum nebulizers and assuming responsibility for correlating information on patients' contacts, a responsibility which previously had been carried by the field nurse. Every clinic has at least one health aide who is trained to operate the chest X-ray machine, and every aide is able to administer tuberculin tests. In many instances a health aide who is regularly attached to a clinic performs her duties more efficiently than a nurse who is only occasionally assigned to the chest clinic from general nursing duties. The presence of the health aides in the clinics has relieved the clinic nurses of many of their routine duties and permitted them to concentrate purely on nursing. The expansion of staff by use of health aides has permitted the time available to patients to be extended from "clinic sessions" to a system of continuous all-day service. The fact that the field aide works also in the clinic provides continuity between the patients' homes and the clinic and almost certainly adds to the acceptability of the clinic service.

The transfer of responsibility from the nursing staff to aides was not achieved without some

initial misgiving on the part of the staff of the bureau of nursing. With the passage of time, however, it has become increasingly clear that the service now being provided could not have materialized without the use of paramedical staff.

Cost of Expanded Field Services

In 1969, nurses carried out 4,315 home visits for the tuberculosis control program, a reduction of 6,875 visits as compared with the year 1965, when they carried out 11,185 home visits. Each nursing visit has been estimated to cost \$7.50 so that the total reduction of expenditure that the tuberculosis control program effected in nurses' home visits was \$51,562. The cost of a similar number of home visits by the investigative staff in 1969 was estimated at \$15,000, a very substantial saving.

On the other hand, if the needed services could have been obtained from the bureau of nursing to expand the tuberculosis home visiting to the 1969 level by using only nursing personnel, the field services for the tuberculosis control program would have cost \$156,652, instead of the actual \$66,812, a sum made up of 4,315 nursing visits at a cost of \$32,362 and 16,572 investigative staff visits at a cost of \$34,450.

Thus, our expanded field services, operating with paramedical staff and requiring a minimum number of visits by nurses, cost considerably less than one-half what the cost would have been if nursing staff alone had been used.

Objections to Health Aides

In the past, several objections have been raised to the use of specialized personnel. It has been said that, obviously, it is better for one person to take care of all of a patient's needs—a statement which is probably true. Another objection put forth, and rightly, is that it is undesirable for a number of different health "specialists" to call at a household in quick succession for different purposes. Undoubtedly the vision of the generalized nurse who visits regularly and—it is hoped—solves all health problems of the households in her district is a desirable one and a vision which may be realized under certain conditions. Today, however, especially in large cities where

nursing services are stretched beyond reasonable limits, the regular visit of the generalized nurse is the exception rather than the rule.

We decided to determine the degree of overlap in those tuberculous households in the City of Baltimore which the health aides had visited and also to find out how many of these households had been visited by a health nurse over the preceding 12 months. Analysis of the questionnaires which the aides had completed at every household they visited over a period of 2 months showed that only 7 percent of these households had been visited by a nurse in the preceding 12 months and that three-quarters of the nurses' visits had been initiated through the tuberculosis program. The majority of nursing visits are made to supply maternal and child care services. Therefore, to some extent, the households in question may well have been a self-selected group. Since tuberculosis occurs frequently (about 20 percent of the time) in persons living alone and its greatest incidence is in the elderly, the households with tuberculous patients are likely to have never needed, or to have outgrown the need, for maternal and child care services.

Thus, while the objections raised to the use of specialists may have merit in some health fields, they certainly carry no weight in tuberculosis control. Rather, tuberculous households seem to be poorly provided with health services in general. Accordingly, there appears to be merit in expanding the training of the health aides used in the tuberculosis control program so that they can assist in solving some of the other health problems they encounter.

Summary

A special tuberculosis project in Baltimore, Md., has demonstrated that a paramedical staff largely comprised of carefully selected health aides who come from the areas targeted for disease control can, with suitable training, extend, and to some degree, replace professionals. Health aides are easier to recruit than professionals and, in the special project in Baltimore, losses of such workers by resignation have been minimal over a 3½-year period. Only one of 23 health aides taken on to fill the present 11 posts was lost to service through resignation. The aides' field activities, being centered in the chest

clinics, are easier to direct than those of nurses centered elsewhere and primarily answerable to a district nursing supervisor. Use of the aides has eliminated the delays and failures in communication previously experienced between the chest clinics and the district nurses. Because the aides work part time in the clinics and part time in the field, they have also been able to provide better continuity of care and an atmosphere more acceptable to patients.

The very success of the aides, however, has generated considerable extra work at the chest clinics so that visits by patients have increased 50 percent over a 5-year period. By the end of 1969, the aides were spending half their total available time in a variety of clinic routines which otherwise would have fallen to the nurses. In fieldwork alone, substitution of aides for nurses saved almost \$90,000 in 1969; at the chest clinics, use of the aides also saved an estimated \$25,000 that year. There is evidence, too, that counseling sessions conducted by the aides over

a 3-year period helped restore to self-support 23 tuberculous alcoholics who had previously depended fully on public funds. Moreover, the general efficiency of the tuberculosis project has not been adversely affected by dilution of the professional staff; rather, standards of performance have improved significantly.

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Tearsheet Requests

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Georgia's Consumer Services Program

Georgia's Consumer Services Program offers free assistance to consumers throughout the State, with concentrated emphasis on the lower income shopper. It is the first consumer project in the country to receive Federal funds that are administered by a division of State government other than a grant-in-aid agency. It is also among the first to promote individual assistance, rather than general overall advice to the consumer.

The program is a division of the Comptroller General's Office, and operates on a grant from the Social and Rehabilitation Services. (Section 1115 project awarded to the Georgia Department of Family and Children Services and contracted to the Comptroller General's Office.) Primary target of the program is the lower income consumer, since he is the one most harmed by poor buying judgment. While a person with a good income can often afford to waste a few dollars paying too much for a product, that few dollars may well be all or

most of what the poor man was going to use for food that week. The Georgia Consumer Services Program operates through four sections:

Telephone Information Center—open since November 1, 1969, provides immediate consumer counseling through a special telephone line which enables the consumer to call the program information center free from anywhere in Georgia.

Consumer Services Section—is working to recruit and train volunteer counselors from existing statewide agencies, primarily the Georgia Department of Family and Children Services, community action agencies, model cities, and the public health agencies.

Training Section—develops educational courses, programs, and operational kits for low-income consumers, as well as specialized consumer materials. It also prepares volunteer training teams for work on the local community level.

Pregnant Weight Watchers Risk Harm to Babies

Current medical practice of restricting pregnant women to a weight gain of only 10 to 14 pounds may be contributing to the high infant mortality rates in this country, according to a report of the National Research Council's Committee on Maternal Nutrition.

The report recommends an average weight gain of 24 pounds, within a range of 20–25 pounds. It also states that the routine supplementation of diets of pregnant women with vitamin and mineral preparations is of doubtful value with the exception of iron and folic acid.

Surveys of human experiences internationally during World War II and in lesser developed nations more recently have indicated that restriction of diet during pregnancy may unfavorably affect the growth and development of the fetus. In addition, laboratory experiments on dogs, sheep, and other animals show a marked reduction in size of offspring when the mother is on an inadequate diet. Accordingly, the current obstetric practice in the United States—restricting normal weight gain—is not justified. Weight reduction programs and severe caloric restrictions should not be undertaken during pregnancy, even for obese women, because of the possibility of adverse effects on the fetus' weight and neurological development. Weight restrictions are particularly harmful to underweight women and to pregnant adolescents. Women who smoke during pregnancy are particularly vulnerable, as they deliver infants of significantly lower birth weights.

A primary reason for practicing weight restriction is to reduce the chances that an expectant mother will have toxemia. The toxemia of pregnancy, a metabolic disorder accompanied by body swelling and increased blood pressure, can lead to a more serious condition, eclampsia. However, the committee found no evidence that excessive weight gain, whether in the form of fat or water, causes toxemia. Also, there is no evidence that prescribed caloric restrictions during pregnancy have any effect on the incidence of toxemia or that women who gain excessively are more prone to toxemia.

A strong association exists between the incidence of toxemia and income levels. Women in low-income groups suffer from toxemia-connected deaths at a rate of 11.9 per 100,000. In contrast, women in middle-income groups have a rate of only 5.9 deaths

per 100,000, and women in high-income groups, a rate of 3.8 per 100,000.

Deaths from toxemia in poorer sections of the country are much more frequent than the national average of 6.2 per 100,000. Mississippi and South Carolina have the lowest per capita income rankings and the highest mortality rates, 30.2 and 21.0 per 100,000 respectively. The extremely high death rate from toxemia among Negro women is due to factors associated with the home or community rather than biological characteristics. Environmental conditions associated with low income, including lack of prenatal care, are important in the toxemia situation.

Some environmental factors which contribute to high infant and perinatal mortality among the poor were specified by the committee. At low socioeconomic levels, frequent infections and contagious diseases occur during childhood because of crowding, poor medical care, inadequate diet, and poor dietary habits which contribute to poor growth and development. Girls may marry early, conceive premaritally or at an early age, be poorly educated, engage in hard physical work, have short birth intervals, give little attention to health practices and to seeking health care, and have limited access to adequate medical care. They may live in poor housing, suffer from the effects of a low family income or family and social disorganization, consume low-quality diets, and develop a fatalistic outlook toward life in general and pregnancy in particular.

In its recommendations, the committee emphasized the importance of good diets for pregnant women and all women of childbearing age. It suggested that an iron supplementation of 30 to 60 milligrams daily in divided doses be used during the second and third trimesters of pregnancy with a daily supplement of 200 to 400 micrograms of folic acid.

A long-term public health aim was called for to improve nutrition among women of childbearing age by teaching good dietary habits to a larger proportion of the general public. The committee also recommended that courses on nutrition and its relation to disease and the maintenance of health be taught in medical schools. At present, too many physicians draw heavily on information in commercially prepared diet guides and tend to rely exclusively on vitamin and mineral supplements for preventing and treating nutritional deficiencies.